DOCUMENT RESUME

ED 290 778 TM 011 018

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TITLE Factor Analysis of the Attributional Style Questionnaire: Attributions, Outcomes, Events.
PUB DATE Aug 87
NOTE 16p.; Paper presented at the Annual Convention of the American Psychological Association (95th, New York, NY, August 28-September 1, 1987).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS College Students; Correlation; Depression (Psychology); Factor Analysis; *Helplessness; Matrices; Personality Measures; *Psychological Evaluation; *Psychometrics; Questionnaires; Secondary Education; Statistical Analysis
IDENTIFIERS *Attribution Style Questionnaire

ABSTRACT

Attributional style as it has been operationalized in the Attributional Style Questionnaire (ASQ) was critically assessed. A sample of 538 senior high school and college students completed the ASQ. The resulting ASQ data were then intercorrelated, factor analyzed, and compared to hypothesized matrices for all items, good outcome items, and bad outcome items. Factor analysis revealed no evidence of three attributional styles and demonstrated the weakness of the attributional model. The strength of alternative "outcome" and "event" factor solutions was shown. The ASQ appears to measure the good outcome/bad outcome dichotomy. (SLD)

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Factor Analysis of the Attributional Style Questionnaire: Attributions, Outcomes, Events

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Presented at 95th. Annual Convention of the American Psychological Association at New York City, August, 1987.

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Factor Analysis of the Attributional Style Questionnaire:
Attributions, Outcomes, Events

Abstract

This study critically assesses the concept of attributional style as it has been operationalized on the ASQ. It is argued that the ASQ does not measure attributional style, but reaction to good and bad outcome, and to specific events. To verify this hypothesis, ASQ data were intercorrelated, factor analyzed, and compared to a variety of hypothesized matrices. The analyses repeatedly demonstrate the weakness of the attributional model, and the strength of alternative "outcome" and "event" factor solutions. These solutions are discussed in terms of influences beyond attributional style, and the specificity of attributions to events.

The reformulated theory of learned helplessness (Abramson, Seligman, & Teasdale, 1978) predicts that certain types of attributions to success and failure outcomes produce depression. Specifically, "a style in which internal, stable, and global attributions are offered for bad events is associated with depressive symptoms...; to a lesser degree, the opposite style for attributing good events is also associated with depression" (Peterson, Semmel, von Baeyer, Abramson, Metalsky, & Seligman, 1982, p. 297).

Numerous studies have assessed attributional styles across a variety of populations. The Attributional Style Questionnaire (ASQ; Peterson et al., 1982) is a prevalently used inventory especially devised for this endeavour (Peterson & Seligman, 1984). It is designed to evaluate (a) the three attributional styles across (b) two outcomes (good and bad), (c) two types of goal area (achievement and affiliation), and (d) 12 events.

After a qualitative review of studies which employed the ASQ, Peterson and Seligman (1984) concluded that results supported the three-attributions model. Likewise, on the basis of their meta-analytic review, Sweeney, Anderson, and Scott (1986) concluded that the three attributional dimensions were reliably associated with depression. Both these reviews studied the relationships between each of the attributions (internal, stable, global) and various criterion measures of depression.

The problem with such studies, however, is that although they demonstrate correlations between measures of depression and each ASQ component, they do not validate the theory that the three attributions represent separate dimensions. Indeed, there exists evidence to the contrary in studies addressing the internal characteristics of the ASQ.

Based on data offered by Seligman, Abramson, Semmel, and von Baeyer (1979) and Peterson et al. (1982), Bagby and Atkinson (Note I) argued that the ASQ evaluates not three attributional dimensions, but two dimensions of good outcome and bad outcome. Bagby and Atkinson tested this hypothesis by factor analyzing the original "normative" subscale correlation matrix presented by Peterson et al. (1982), and a second matrix published by Zautra, Guenther, and Chartier (1985). The factor solutions were then compared to hypothesized matrices representing both the three attributional styles and the good-bad dichotomy. Bagby and Atkinson's (Note I) predictions were verified; the Peterson et al. (1982) and Zautra et al. (1985) matrices showed excellent correspondence with the good-bad hypothetical matrix, and no congruence with the three-attributions matrix. The shortcoming of the Bagby and Atkinson (Note I) study, however, is that subscales, rather than items, were factor analyzed, and this may represent a conservative test of the ASQ.

Cutrona, Russell, and Jones (1985) conducted confirmatory factor analyses on ASQ data collected from a sample of university undergraduates. Cutrona et al. used only the 18 bad outcome items of the ASQ. They found that the three-attributions conceptualization did not account well for the relations among ASQ items. A better model involved the three attributional dimensions plus five additional independent factors corresponding to negative events on the ASQ. Cutrona et al. concluded that "only modest evidence for an attributional style was found" (p.1054). As mentioned above, however, Cutrona et al. did not test the three-attributions model on the good outcome and bad outcome components combined, or on the good outcome component separately. Nor did they study the factor structure of the ASQ for

non-attributional models (e.g. good outcome, bad outcome).

The present paper seeks to extend previous research by studying ASQ items (c.f. Bagby & Atkinson, Note I), both good and bad (c.f. Cutrona et al., 1985). On the basis of the aforementioned literature, it was predicted that the three attributions model would account poorly for the relations among ASQ items. Rather, when the entire ASQ is analyzed, substantively meaningless two-factor (good outcome, bad outcome) and 12 factor (with each factor corresponding to one event) solutions will better represent ASQ factor structure. When good outcome items and bad outcome items are analyzed separately, it is expected that six-factor (event) solutions will better represent ASQ structure than will the three-factor (attributions) models.

Method

A sample of 538 senior high school and college students completed the ASQ. All ASQ items were then intercorrelated. The resulting matrix was assessed for psychometric adequacy using Bartlett's (1950) test of sphericity, the Kaiser-Meyer-Olkin measure of sampling adequacy (MSA; Kaiser, 1970), and inspection of the off-diagnal elements of the anti-image covariance matrix (AIC; Kaiser, 1963). These same procedures were repeated to test the correlation matrices of the good outcome and bad outcome items separately.

All three correlation matrices (all items, good outcome items, bad outcome items) were then subjected to principal factoring with iterations, squared multiple correlations in the diagonal. Factors were rotated obliquely, with two exceptions explained below.

For the all-item matrix, three solutions were extracted, with number of factors specified a priori as two (to test the "outcomes"

hypothesis), three (to test the "attributions" hypothesis), and 12 (to test the "events" hypothesis). In the case of the 12 factor solution, however, varimax rotation was substituted for oblique rotation, because oblimin failed to converge on a solution. For each of the good outcome item and bad outcome item matrices, two solutions were extracted, specifying a priori three factors (to test the "attributions" model) and six factors (to test the "events" model). For the six factor, bad outcome item matrix, varimax rotation was again used because oblimin failed to converge on a solution. Congruence coefficients (Armenakis, Field, & Wilmoth, 1977) were calculated to compare all factor solutions with their respective hypothesized matrices.

Results

All-Item Matrix

Bartlett's test of sphericity ($\underline{X}^2$ (630 df) = 3,172, $\underline{p} < .00001$), matrix MSA (.67), and AIC (only 8% were greater than .09), all indicated that the correlation matrix (or ASQ) was appropriate for factor analysis.

Two-factor solution. Perusal of the structure matrix (Table I) suggests that it conforms to expectations. FI consists of 10 bad outcome items with factor loadings greater than .35; 12 good outcome variables load highly on F2. More formally, when this solution was compared to the hypothesized good outcome, bad outcome matrix, congruence coefficients of .88 and .92 indicated good correspondence for both factors.

Three-factor solution The three attributional dimensions do not appear well differentiated by this solution (see Table 1), with no dimension represented uniquely by a factor. Comparison of actual and predicted matrices revealed uniformly low coefficients (< .60).

Twelve-factor solution. In this solution, factors tend to represent separate events (see Table 1). Formal comparison of actual and hypothesized matrices revealed that two factors (I, 9) did not conform to expectations, with congruence coefficients less than .60. The other ten factors (events) were as predicted, with coefficients ranging between .79 and .94.

Good Outcome Item Matrix

Bartlett's test of sphericity ($\underline{X}^2$ (153 dF) = 1,780 , $p < .0001$), MSA (.68), and AIC (20% were greater than .09) all indicated that the correlation matrix was appropriate for factor analysis.

Three-factor solution. Far from representing Internality, Stability, and Globality as distinct dimensions, this solution shows each attribution to share substantial variance with every factor (see Table 2). Comparison of actual and hypothesized matrices revealed no congruence coefficient above .60.

Six-factor solution. Perusal of this solution (Table 2) suggests that all good outcome events are represented as separate factors. Congruence coefficients between .88 and .96 confirm the close concurrence between actual and predicted solutions.

Bad Outcome Item Matrix

Once again, Bartlett's test of sphericity ($\underline{X}^2$ (153 dF) = 1103, $p <$ .0001), MSA (.72) and AIC (17% were greater than .09) showed the correlation matrix to be sufficiently well integrated for factor analysis.

Three-factor solution. Stability and globality are both represented on FI, and all the attributional dimensions are represented on F2 and F3 (see Table 3). This hardly provides evidence for the existence of three separate dimensions. Comparison of actual and

hypothesized matrices showed only poor correspondence for F1, Globality (congruence coefficient = .74). F2 and F3 did not correspond to hypothesized Internality and Stability factors (congruence coefficients < .60).

Six-factor solution. Inspection of this matrix (Table 3) suggests that all factors but F1 represent well delineated events. Formal comparison shows this to be the case; actual factors 2 through 6 correspond to hypothesized factors, with congruence coefficients between .80 and .93. E5 was not well represented by F1 (.53).

Discussion

Thus, factor analysis of three ASQ correlation matrices (all items, good outcome items, bad outcome items) revealed no evidence of three attributional styles. There are two possible explanations for this state of affairs: Either the ASQ itself is faulty, or the reformulated learned helplessness hypothesis is in need of further reformulation. Coyne and Gotlib (1983) suggested the latter possibility. Upon reviewing studies based not only on ASQ responses but also on reaction to success and failure in laboratory tasks and actual life events, Coyne and Gotlib concluded that the learned helplessness model was at best equivocally supported. Although Peterson and Seligman (1984) and Sweeney et al. (1986) argued that experimental results did vindicate the model, their reviews were based on the apparently unfounded assumption that the ASQ measures three separate attributions.

What the ASQ does appear to measure is the comparatively trivial good outcome, bad outcome dichotomy. This finding indicates that situational factors influence the individual's inferences concerning the causation of an event (Kelley & Michela, 1980; Weiner, 1980).

Confirmation of the "events" hypothesis calls into question the whole notion of attributional "style". Rather, what is suggested is that individuals are not consistent across situations. As Mischel (1968) has argued, "even seemingly trivial situational differences" (p.177) may undermine the predictive utility of personality traits.

Reference Note

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Table 1
Factor Structure of the Attributional Style Questionnaire

	Principal Factoring, Oblique Rotation					Principal Factoring, Varimax Rotation											
	2-factor solution		3-factor solution			12-factor solution											
Item	1	2	1	2	3	1	2	3	4	5	6	7	8	9	10	11	
I1	-.19	.17	-.13	.27	.24	-.04	-.11	-.21	.09	.25	.54	-.10	.15	.04	-.06	-.25	-.06
S1g	.04	.44	.07	.45	-.04	-.01	.12	.12	.20	.03	.67	.06	.10	.03	-.07	.06	.01
G1	.10	.27	.12	.25	-.02	.03	-.05	.06	-.01	.00	.79	-.02	-.02	-.07	.12	.10	.01
I2	.15	.01	.15	.02	.00	-.10	-.04	-.02	.12	.05	-.02	.12	-.02	.04	.74	-.06	.08
S2b	.28	-.06	.30	-.02	.16	.08	.11	-.07	-.04	-.08	-.07	-.05	.02	.62	.31	.07	-.07
G2	.44	.02	.42	-.05	-.15	.25	.03	.08	-.08	-.06	.06	.05	.02	.13	.73	.12	-.04
I3	.01	-.41	.09	.21	-.69	-.03	.04	.80	.05	.14	.01	.10	.03	-.12	-.01	-.08	.02
S3g	.07	.42	-.03	.22	-.67	.02	.13	.82	-.01	.01	.16	.03	-.02	.05	-.09	-.04	-.03
G3	.10	.23	.00	.07	-.64	.05	-.01	.75	-.01	.03	-.07	-.10	.03	-.05	.14	.07	.07
I4	.18	.08	.23	.15	.23	-.04	.04	-.20	.16	.18	.02	.13	-.15	-.06	.03	.52	.18
S4b	.22	-.03	.27	.04	.26	.02	-.31	-.01	.29	.03	-.05	.18	.09	.25	-.05	.47	-.18
G4	.41	.07	.42	.05	-.03	.25	-.04	.09	-.03	.06	.03	-.04	-.02	.11	.07	.66	.01
I5	.10	.00	.12	.01	.06	.05	-.30	.09	.31	.17	-.11	.13	-.03	.18	.14	-.40	.20
S5b	.45	-.08	.49	-.02	.23	.39	-.05	-.11	.09	-.08	.06	.07	-.19	.51	.05	.03	.04
G5	.62	.01	.63	-.02	-.01	.74	-.03	-.02	.03	-.03	.07	-.10	-.13	.18	.11	-.01	.11
I6	-.13	.39	-.03	.52	.35	-.10	.03	-.06	.76	.14	.01	-.03	.01	.09	.03	-.03	-.09
S6g	.01	.56	.09	.64	.18	.04	.23	.05	.72	.02	.20	-.06	.03	.03	-.04	.08	.02
G6	.03	.47	.08	.51	.05	.15	.25	.05	.61	-.07	.14	-.17	-.12	-.33	.10	.12	.08
I7	.19	-.03	.21	-.02	.07	.34	-.27	-.07	.20	.15	-.08	.35	.18	-.12	-.08	-.18	-.24
S7b	.60	.04	.59	-.01	-.09	.56	-.07	.08	.09	-.04	-.06	.29	.16	.17	-.07	.18	-.03
G7	.63	.01	.59	-.10	-.20	.72	.00	.03	-.07	.01	-.11	.26	.06	-.07	.00	.08	-.01
I8	.21	.05	.17	-.12	-.17	-.01	-.13	.02	.00	.01	-.09	.12	.08	-.08	.06	-.14	.73
S8b	.43	.04	.44	.03	.01	.15	.02	.00	.01	-.02	.07	.19	.02	.50	-.18	.06	.50
G8	.57	.14	.55	.05	-.21	.47	.09	.06	-.11	.04	.21	.08	-.05	.11	.07	.05	.47
I9	-.23	.03	-.26	.01	-.11	-.12	-.06	-.06	-.09	.07	.00	-.09	.78	-.01	.07	-.11	-.04
S9g	-.07	.31	-.07	.29	-.14	-.01	.26	.04	.13	-.09	.16	.10	.59	.05	-.16	-.07	-.02
G9	.14	.23	.09	.13	-.36	.18	.15	.13	-.01	-.09	.07	-.11	.60	-.17	.09	.17	.28
I10	-.14	.50	-.10	.52	-.03	-.03	.57	-.04	.19	.29	-.11	.03	.18	.15	-.08	-.19	-.05
S10g	-.05	.61	-.02	.61	-.11	-.14	.73	.06	.21	.15	.01	.18	.04	.14	-.02	.00	.00
G10	-.02	.56	-.03	.49	-.32	.09	.72	.14	.06	.08	.02	-.01	.09	-.14	.08	.01	-.07
I11	.28	-.03	.24	-.12	-.21	.02	.02	.01	-.04	-.02	-.13	.63	.02	-.20	.17	-.07	.21
S11b	.49	.00	.48	-.06	-.11	.16	.11	.03	-.13	.08	.09	.62	-.09	.22	-.03	.09	.10
G11	.62	.04	.62	-.02	-.11	.41	.09	-.03	-.07	-.02	.07	.53	-.13	.00	.19	.17	.02
I12	-.14	.44	-.12	.44	-.07	-.07	.02	.08	.04	.83	.03	-.03	.04	-.04	.00	.04	-.02
S12g	-.07	.56	-.02	.59	.02	-.12	.32	.05	.18	.55	.18	.09	-.14	.12	-.10	.07	-.02
G12	.00	.52	.00	.47	-.23	.18	.26	.11	.00	.67	.03	-.17	-.04	-.25	.08	.10	.09

Note: I = Internality, S = Stability, G = Globabity, g = good outcome, b = bad outcome

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Table 2

Factor Structure of the Attributional Style Questionnaire, Good Outcome Items (Principal Factoring, Oblique Rotation)

	3-factor solution			6-factor solution					
Item	1	2	3	1	2	3	4	5	6
I1	.25	-.27	.22	.05	-.28	.10	.57	.30	.07
S1	.35	.08	.44	.23	.14	.17	.70	.04	.25
G1	.16	.04	.28	-.02	.09	.01	.79	-.01	.10
I3	.16	.81	.08	.12	.81	.06	.04	.16	.05
S3	.15	.80	.13	.19	.81	.02	.17	.02	.02
G3	.03	.75	.01	-.02	.76	.04	-.09	.05	.05
I6	.53	-.23	.08	.22	-.14	.00	.10	.16	.71
S6	.62	-.07	.23	.29	.05	.09	.23	.12	.82
G6	.52	.02	.11	.15	.13	.03	.12	.13	.77
I7	-.07	-.07	.62	.03	-.08	.76	.04	.12	-.14
S7	.20	-.05	.70	.29	.00	.69	.13	-.01	.20
G7	.02	.11	.62	.06	.17	.67	.08	-.05	.10
I10	.52	-.01	.26	.73	-.03	.15	.02	.22	.16
S10	.61	.08	.26	.84	.09	.03	.12	.09	.28
G10	.50	.19	.31	.69	.19	.18	.06	.17	.20
I12	.52	.16	-.06	.20	.07	.03	.12	.85	.12
S12	.65	.04	.01	.53	.00	-.11	.25	.53	.25
G12	.54	.22	.06	.22	.16	.04	.03	.79	.23

Note: I = Internality, S = Stability, G = Globality

Table 3

Factor Structure of the Attributional Style Questionnaire, Bad Outcome Items

	Principal Components, Oblique Rotation 3-factor solution			Principal Components, Varimax Rotation 6-factor solution					
Item	1	2	3	1	2	3	4	5	6
I2	.00	.35	.50	.02	.00	-.02	.06	.02	.78
S2	.35	.00	.51	.58	.05	-.19	-.01	.01	.19
G2	.34	.31	.54	.36	.20	-.01	-.05	.09	.64
I4	.24	.03	.02	-.12	.06	-.08	.16	.73	.05
S4	.38	-.17	-.16	.11	-.23	.40	.02	.47	-.02
G4	.53	-.07	.07	.24	.13	.05	-.06	.67	.03
I5	.03	.29	.05	.04	-.29	.39	.46	-.18	.29
S5	.54	.00	.26	.65	.04	.12	.05	.04	.04
G5	.66	.16	.12	.58	.16	.34	.08	.12	.10
I7	.19	.20	-.49	-.13	.07	.70	.00	-.08	-.01
S7	.61	.23	-.27	.29	.34	.53	.00	.15	-.06
G7	.59	.34	-.29	.22	.43	.53	.04	.15	-.02
I8	.01	.51	.07	-.14	.07	-.02	.73	.10	-.24
S8	.38	.31	.10	.40	.21	-.05	.58	.01	.05
G8	.46	.41	.09	.36	.31	.07	.48	.09	-.02
I11	-.02	.65	-.14	-.34	.55	.12	.19	-.05	.28
S11	.33	.49	.06	.15	.69	.01	.11	-.04	-.05
G11	.50	.50	-.05	.16	.66	.19	.03	.17	.15

Note: I = Internality, S = Stability, G = Globality